

Chapter 12

Concluding Remarks

12.1 University Discourse, the Research Parallax and the Moebius Ring

The aim of continental philosophy, as Hegel phrased it, is to develop a diagnostics of the present. This monograph adheres to this vocation by regarding research misconduct as a symptom, reflecting current changes in the ways in which knowledge is produced and evaluated. From a continental philosophy of science perspective, scientific research is a profoundly socio-cultural phenomenon, a transformative practice pervading society while at the same time being affected by social dynamics. Our overall starting point has been Lacan’s formula describing university discourse:

S_2 (expert knowledge)	a (the recalcitrant object)
S_1 (the imperatives of the dethroned Master)	$\$$ (epistemic despair)

This formula reflects a topology, as we have seen. The basic objective of laboratories (in the natural sciences) or libraries (in the humanities) is to create compartmentalised podiums (above the bar) where knowledge can be quietly produced, while the noise and turbulence of the outdoors world is kept at bay. This divide between inside and outside is represented by the horizontal line. The researcher (S_2) is supposedly objective and impassive, neither influenced by ideological creeds (S_1), nor by perennial metaphysical collisions ($S_1 \leftrightarrow S_1$), nor by subjectivity (i.e. prejudices, emotions or conflicts of interest: $\$$). Such intrusions and disturbances are kept beneath the bar, so that researchers may quietly interact with their objects of research (molecules, model organisms, survey data, historical documents, archaeological finds, etc.).

But this topology of compartmentalisation may become destabilised, by the recalcitrance of the object (a), or by the intrusion of the real (the recurrence of something that had been overlooked), or by clashing convictions (philosophemes)

at work beneath the bar (S_1), guiding and fuelling the research. A genomics researcher, for instance, may be convinced that human beings *are* their genome. A brain researcher may be convinced that human beings *are* their brain. And a social psychologist may be convinced that human beings *are* individuals without inherent qualities, whose behavioural repertoires are conditioned by past experiences and moulded by actual situations. While putting this basic conviction (reflecting a worldview: M_1) to the test, the researchers involved will be confronted with the frustrating yet decisive experience (M_2) that their initial convictions are biased and one-sided. The object (allegedly in control) refuses to live up to the expectations, so that the worldview is shattered by the real and scientists are challenged to address and sublimate this negativity by developing a more comprehensive view ($\rightarrow M_3$).

From a Lacanian perspective, however, scientific research will never be able to completely overcome the parallax between the research as actually conducted (the context of discovery) and the research as reported (the context of justification): the two reverse sides of the Moebius ring of scientific research. Science is both a practice and a discourse, so that scientists are both practitioners and authors, but there is a chronic tension between both roles. Whereas normal philosophy of science tends to focus on the scientist-as-a-practitioner (for instance by concentrating on the empirical cycle or the experimental method), research misconduct shifts the focus of attention to the researcher-as-an-author (Zwart 2001). Research misconduct typically emerges in the gap between research as conducted and research as reported. The parallax between these two roles (researcher and author) may give rise to epistemic despair: the experience that paradigms refuse to function ($\$$), or even that scientific research as such proves an impossible profession, so that researchers slide into deflection ($S_2 \rightarrow \$$), or relapse into fundamental discussions about the viability of the philosophemes that are guiding the research (S_1), so that the program falters. At this point, misconduct may become an option (to maintain the apparent functionality and performativity of the paradigm involved). But the researchers involved may also find ways to work-through these experiences of frustration and despair, opting for the path towards self-knowledge and individuation (self-analysis).

The researchers depicted in the science novels discussed in this monograph can all be positioned along this continuum stretching from the fraud pole up to the reparation pole. Martin Arrowsmith for instance proved unable to reconcile the imperatives of research methodology with the normative restrictions of applied research and, instead of working through these conflicts, opted for a strategy of retreat into the beautiful soul position. Donald Howard (*The Affair*) was not interested in rehabilitating himself as a scientist (sticking to his role of uncommitted researcher who had merely tried to play the game) and settled for legal and procedural expiation. In *Cantor's dilemma*, while Jerry learns from his experiences, Cantor allows his intentionality to shift from discovering the missing link (the object *a* of cancer biology) to playing the game of publication politics, to secure his Nobel Prize. In *Perlmann's silence* plagiarism is an act of despair, provoked by self-exploitation, which resulted in the loss of a former prolific Self (now lost on the reverse side of the Moebius ring). In *Intuition*, Cliff is able to recover from his epistemic trauma and to restore his tainted integrity, seeing his experiences as part of an individuation process, a

bildungsroman. In *Solar*, plagiarism is a desperate but abortive attempt to conflate the growing divide between real science (quantum physics) and managerial activities (again experienced as reverse sides of a Moebius ring). And *Derailment* is likewise structured as a (roller coaster-like) Moebius strip, taking the subject from absurdist theatre to university discourse, to despair, deflection and fraud, and via cynicism (the discourse of the hysteric) up to self-analysis (the discourse of the analyst).

But these analyses not only result in an inventory of possible scenarios, but also in a further elaboration of the oblique methodology for studying them, presented in Chaps. 1 and 2. In other words, these analyses in terms of the four discourses also have repercussions for philosophy of science itself as an intellectual practice. Philosophy is not regarded as a purely theoretical or apodictic type of discourse, where an autocratic Master (M_1) addresses his disciples (S_2 : the custodians of his truth claims), in accordance with the logic of the discourse of the Master. Rather, philosophy analyses the other discourses, most notably university discourse, from an oblique perspective, focussing on the interactions between researchers and their objects (above the bar), but also on the philosophemes: the basic truth claims (below the bar) which guide or hamper the research, often without being explicitly addressed (S_1). The various experiences of frustration may at times result in deflection: research misconduct as a by-product of an “impossible” profession (\$).

In other words, misconduct is a fascinating phenomenon (from a continental philosophy of science perspective) because it provides a window into the vicissitudes and challenges of contemporary scientific research. In standard integrity discourse, research misconduct is often addressed from a *university discourse* perspective, by qualified experts specialised in analysing misconduct issues from ethical or legal, economical or governance angles. But this type of discourse is often repetitive and moralistic as we have seen, bent on blaming the individual researcher, or on calculating the costs of misconduct, or on formulating and imposing guidelines and deontological rules. This monograph approaches the problem from a different viewpoint, revolving around the *why* question. To formulate it in terms of the case study discussed in Chap. 11: in order to come to terms with research misconduct, Stapel’s introspective self-analysis *Derailment* is more revealing than the formal report published by the triumvirate Levelt, Noort and Drenth. Rather than scrutinising his whole oeuvre (“the whole of a fraudster’s body of scientific work”), as the authors of *Flawed science* claim to do (p. 5), the triumvirate focusses exclusively on the upper half of Stapel’s university discourse: on the events occurring above the bar: the tinkering of the researcher (S_2) with his precious but disappointing findings (*a*):

S_2 (the tinkering researcher)	<i>a</i> (tweaked or fabricated data)
S_1 (methodological imperatives versus absurdism)	\$ (epistemic despair)

Thus, the triumvirate focusses on the texts emerging on the top side of the Moebius strip, analysing them in a quantitative manner. Specialised expertise is

called in, notably statistical support: “the Committees’ work was supported by teams of statisticians” (*Flawed Science*, p. 9), functioning as the triumvirate’s “servants” (S_2). Like Hackett and Schneiderman in *Intuition* (discussed in Chap. 9), these experts employ forensic methods to “reverse engineer” their way backwards from journal article to data, in order to unravel the fraudster’s “pattern of deception”. But this means that they only assess half of the story, eclipsing the other half. The narrative of Stapel’s misconduct is sliced in two (like Aristophanes’ egg), and the exclusive focus on the manifest half (above the bar) works as an immunisation strategy, a frantic effort to keep the disconcerting other half (the epistemic despair, the struggle with absurdism, etc.) at a safe distance. I would therefore recommend *Derailment* as mandatory reading for anyone interested in the topic, so that his $N = 1$ retrospect, together with the triumvirate documents, present contrasting and conflicting views: reverse sides of the Moebius ring. The one serves to highlight the blind spots and deficits of the other. A psychoanalytic approach gives the floor to the first-person perspective, albeit exposing it to and confronting it with contrasting interpretations, thus staging a dramatic dialogue. Stapelgate, notably the documents by Stapel and by the triumvirate (published simultaneously more or less) represent reverse sides of a Moebius ring: a convoluting surface covered with text. The objective of this study is not to produce a consensus statement on the basis of such documents, nor an assessment in the sense that the one is sincere and the other misguided. Rather, it is possible to enter both types of discourse (both sides of the Moebius surface). It would be inadequate to read the one, but refuse to read the other. By solely consulting the triumvirate document (S_1) we would miss the element of epistemic despair and absurdism articulated by Stapel (already in his pre-traumatic oeuvre) and by solely reading *Derailment* we run the risk of sliding into the discourse of the hysteric (\$) instead of developing an oblique perspective on the *cupido sciendi*, the will to know at work beneath the bar.

12.2 Generation, Gender and Ethnicity

This monograph develops an oblique perspective on research misconduct which foregrounds a number of dimensions that may easily become eclipsed if treated in a top-down, managerial manner. But how does it contribute to our understanding of those aspects which (in normal integrity discourse) are often listed under headings such as “demographics” or “diversity”, in other words: aspects such as generation (age), gender and ethnicity?

On the basis of our case studies we may conclude that generational conflicts indeed constitute a key dimension of the integrity landscape. Most if not all research misconduct novels consulted in this monograph stage a struggle between representatives of different generations, notably between mid-life and early stage researchers. Initially, the more senior researchers tend to pose as custodians of normativity and deontology (Gottlieb versus Martin, Cantor versus Jerry, Mendelsohn versus Cliff, the triumvirate versus Stapel, etc.) rebuking younger researchers for their lack

of impassivity, their sloppy methods, their lack of precision, and so on. Yet, in the course of the story, the moral profile of these antagonists, representing different generations, begins to blur. Behind the conscientious persona of the mid-life researcher (or even: *éminent grise*), a lust for power and control, for expropriation and exploitation becomes discernible, at the expense of the younger (dependent) colleague who, in response to these experiences, may enter a process of personal growth. Eventually, Gottlieb proves an unsettling fanatic of scientific truth (to which everything else is sacrificed). Cantor (the senior researcher) is introduced as an exemplary scientist, but while he demands unconditional commitment and complete impassivity from his post-doc, he himself is living a secret second life and allows himself to fall victim to the matheme of desire (his obsession with winning the Nobel Prize).

As to the gender dimension: in all the novels I consulted the perpetrators (or, in grey novels such as *Intuition*, the persons suspected of research misconduct) are consistently male. This reflects criminology in general, where statistics consistently report men to be more prone to commit crimes and misdemeanours than women. It is also consistent with the findings of Fang et al. (2013) who established, in their analysis of almost 20 years of cases of scientific misconduct reported by the U.S. *Office of Research Integrity* (ORI), that 65% offenders were male, while of the 72 faculty members who committed misconduct, 88% were male (cf. Kaatz et al. 2013). In terms of our novels: *Arrowsmith*, the Oppenheimer case and *The Affair* reflect an epoch when research was still almost exclusively conducted by males. Although women may catalyse events (for instance: Laura Howard's role in the reopening of her husband's case), they are basically cast as companions, providing moral support or witnessing the escalating destabilisation of the scientific subject (for instance: Tanya Bloch's role in witnessing the progressive emaciation and introversion of her husband). In *Cantor's dilemma*, however, things have clearly changed. Celestine and Paula are active women pursuing successful careers, whose intimidating athleticism, bodily strength and height underscore emancipation (compared to the older novels). Still, female scientists (Celestine as a biologist, but also her supervisor), although likewise working in competitive academic environments, provide a contrasting backdrop or benchmark of adequacy, commitment, collaboration and integrity compared to Cantor's style of working (which becomes increasingly calculated and exploitative), but also compared to Jerry's style of working (his sloppiness). In *Intuition*, the female researchers (Initially Robin, but eventually also Marion) are the ones who develop intuitive suspicions vis-à-vis Cliff's research, while they themselves put more weight on maintaining integrity standards than on personal success. Yet, in *Perlmann's Silence*, *Solar* and *Derailment* the focus decidedly shifts again to male offenders. Thus, although these novels indicate that the contribution of (autonomous, professional and effective) women to scientific research is decidedly increasing, perpetration and deflection are still represented as something typically male. To the extent that women are on the advance in science, however, both quantitatively and qualitatively (occupying increasingly prominent positions), this may affect case histories as well. The recent autobiography by Jennifer Doudna entitled *A Crack in Creation* (Doudna and Sternberg 2017) may

perhaps be mentioned as an example: a personal retrospect on the CRISPR/Cas9 revolution which, besides loads of molecular biology, also contains interesting instances of dream interpretation for instance. This redistribution of roles may come to affect misconduct novels as well.

As to ethnicity, we must realise that it is more important to psychoanalysis than is sometimes acknowledged. Freud's *The psychopathology of everyday life* (Freud 1904/1941), for instance, is at least as much about ethnic prejudice than it is about sex. The title of *The Affair* is a literary signifier which unequivocally refers to ethnic prejudice, and *Derailment* is devoted to a research field (social psychology) which is more or less specialised in exposing prejudice. In the novels consulted, ethnic roles seem fairly predictable or even stereotypical, however, for instance in *Intuition* (the extremely impassive Asian researcher, the risk-taking Arian, the wealthy Jew, etc.). Overall I would argue that the conflict between generations is fleshed out in much more subtle and intricate ways in these novels than the ethnicity dimension.

12.3 From Diagnostics to Therapy

So far I indicated how Lacanian psychoanalysis entails a diagnostics, helping us to understand the *why* of research misconduct, but this still leaves open the question of therapy: what is to be done?

Issues of research misconduct may be addressed in various ways, first of all in a top-down, apodictic fashion, from the perspective of a *Master's discourse*. This option is enacted by Gottlieb in *Arrowsmith*, for instance, where the teacher poses as a master whose apodictic imperatives are internalised in the form of an uncompromising super-ego. But when Martin tries to effectively apply these inflexible imperatives to genuine dilemmas (emerging both inside and outside laboratory life), they prove impossible to realise in practice and even result in catastrophic instances of sacrifice and self-sacrifice. Martin is not only forced to sacrifice his priority (his claim to fame) in order to live up to the stern methodological requirements imposed on him by his super-ego, but these same requirements also force him to sacrifice scores of research animals, while the violent and impossible nature of these imperatives becomes even more manifest when conducting his trials involving illiterate human subjects.

Dialectically speaking, this could have led to an important experience, namely that the initial apodictic requirements (Gottlieb's fanaticism) were abstract and one-sided. Martin's experiences in the real world outside the laboratory might have resulted in an acknowledgement of normative complexity. That is, he could have elaborated his experiences, thereby contributing to the process of reconciling methodological requirements with ethical constraints (an important objective of post-War bioethics discourse). Instead, he retreats into the position of the beautiful soul, as we have seen, forsaking his loyalty to his truth event (his meeting with Gottlieb) altogether. The discourse of the Master thus reverts into the discourse of the hysteric (deflecting from the world of research as such). From a psychoanalytical perspective,

a process of critical self-reflection and working-through would have proved more fruitful and might even have contributed to an endeavour which became important notably during post-War decades: the bioethical challenge of aligning methodological requirements and bioethical constraints. The novel as such remains a valuable resource, but in a negative way, by demonstrating why this alignment is important and what can go wrong if the tension is ignored (*via negativa*).

The reconciliation of methodological requirements with ethical constraints became an important objective of bioethical discourse as a specific branch of *university discourse*, staging bioethicists in the role of experts. In their rehabilitation of casuistry, Johnson and Toulmin (1988) fleshed out the genealogy of this type of university discourse. They explain how this quarter turn to the left (from the discourse of the Master into university discourse, so that the qualified ethical expert now takes the floor as agent) entailed a shift from a top-down, deductive ethics (*more geometrico*) to more practical forms of moral deliberation: a shift which corresponded with a historical transition, namely the growing reliance of the absolutist monarchs of early modernity (as prototypical Masters) on qualified moral advisors or consultants (as their Servants), notably in the form of court confessors. Especially Jesuits acted as court confessors, as qualified professionals, and this, Johnson and Toulmin explain, resulted in an academic genre, an immense discourse, in voluminous tomes of casuistry, devoted to addressing real-world dilemmas.

The paradigm of the integrity expert continues to exist up to this day, however, although the court confessor of old has emancipated into the autonomous expert (S_2 in the upper-left position), teaching ethics courses and publishing assessments in bioethical journals. Integrity issues are analysed by qualified experts who developed tools and know-how to address challenges emerging in actual research, functioning as integrity experts, or engineers even, developing a conceptual toolbox for solving integrity dilemmas. This may include the use of vignettes: short stories or narrative cases which present stock problems that are solvable in principle.

Yet, such exercises may result in a frustrating parallax experience in the sense that, in real life cases, there remains a persistent gap between guidelines or principles or even vignettes on the one hand and practical intricacies on the other, between solution and problem, between ought and is, between written and unwritten laws. And this may lead to anomalies and frustrations as depicted in our novels (\$ as by-product).

In the novels we consulted, however, the figure of the professional integrity expert (S_2), especially the qualified ethicist, is more or less absent, which may be considered remarkable. In *Intuition*, integrity experts are brought in, but they act as forensic experts rather than as bioethicists, as specialised fraud detectives, interested in hunting down perpetrators rather than in addressing integrity challenges (their role is quite comparable to, for instance, Gospodin Gregg in Chap. 4). In *The Affair*, two legal experts are brought in, but they focus on procedural issues, on defending the rights of their clients, rather than on exploring how issues of research misconduct are to be addressed or prevented. And in Chap. 11, the triumvirate members (Levelt, Noort and Drenth) were neither ethical nor legal experts as we have seen, but rather *éminences grises*: eminent academics, father figures (S_1), who there-

fore represent the discourse of the Master. Indeed, Schuyt (2014) explicitly berates their lack of (notably legal) expertise.

A third option is the discourse of the hysteric, criticising the perversity of the system *as such*. From a psychoanalytical perspective, even the (apparently negative) figure of cynics/hysterics may play a positive role, revealing gaps in established discourse, highlighting blind spots or deliberative routines which rightfully invoke objections, because something of importance has been forgotten or eclipsed, something of value which now has become impossible to articulate (Zwart 2016b). Yet, although the discourse of the hysteric may be effective in the sense that others are pressed into action, it often represents a temporary and unsustainable option, resulting in a deadlock, in self-marginalisation.

Ultimately, a Lacanian analysis endorses the discourse of the analyst, taking the floor when others (S_1 , S_2 , $\$$) have already spoken, revealing the extent to which these others *are* spoken and driven by desire, by a truth unknown to themselves (Verhaeghe 2001). The analyst is basically a rhetorician, an expert in the dynamics and modes of discourse (Lundberg 2012; Lacan 1977–1978, p. 4). In the case of university discourse, the analyst focusses on symptoms of professional uncertainty, ambivalence and unease, camouflaged by the expert’s apparent fluency and subtlety. And whereas the use of vignettes (as part of the tool-box of university discourse) often entails the suggestion that it is possible to bridge the gap between problem and solution, the discourse of the analyst will focus precisely on these gaps, because it is precisely here that the *real* challenges are likely emerge (“mind the gap”: Verhaeghe 2001).

Moreover, the discourse of the analyst is closely connected with education, with the “formation of the scientific mind”, as Bachelard once phrased it, although now the focus has shifted from epistemology as such (the methodologies and technologies of knowledge production) to academic authorship as a practice of the Self, fostering individuation. The oblique perspective challenges the science – humanities divide ($M_2 \rightarrow M_3$). Instead of vignettes (short, formulaic stories), the discourse of the analyst prefers to work with extended case histories, in the form of science biographies and autobiographies for instance, or in the form of science theatre, science cinema and science novels:

a	$\$$
S_2	S_1

Above the bar (on the manifest level) the discourse of the analyst first of all addresses issues of object choice (a in the upper-left position). Why do researchers focus on and respond to this particular object of research? As a rule, object choice is a matter of “displacement” (*Verschiebung*). Instead of on the object of desire as such, researchers focus on “something else”, something which seems more neutral, but which is nonetheless somehow connected with the object a (the object of desire) which may suddenly reveal itself, coming into view as an alluring substitute. In *Carmen*, the archaeologist initially focusses his *cupido sciendi* on archaeological

remains, until he becomes intrigued by something intrusive, emerging in the contemporary world. In *Gradiva*, – a novel about an archaeologist analysed by Freud (1907) –, the focus likewise shifts from an ancient replica of a woman's foot to a contemporary female tourist, and in *Carmen* intentionality becomes displaced from battlefield spoils to the voice and gaze of an itinerant Romani fortune teller. In the Hwang case, the focus of attention shifts from stem cells (already a sensitive item) to oocytes procured from Ph.D. researchers (even more sensitive). In the Oppenheimer case, the hydrogen atom is replaced by uranium and (eventually) by the gadget (the atomic bomb). In *Arrowsmith*, we notice a displacement from bacteria to the bacteriophage (as a laboratory artefact) to phage therapy, i.e. phage vaccines, which prove a *φαρμακόν* (both beneficial and life-threatening for the research subjects involved). In *Cantor's dilemma*, the focus shifts from arginine via cancer cells up to the Nobel Prize. And in *Solar*, the focus shifts from electrons via solar cells up to patents, and so on. Such displacements (suddenly replacing an apparently more neutral object by an object of desire) destabilise the (allegedly impassive) subjects of research, causing them to become divided or even deflecting subjects (\$ in the upper-left position). The subjects divert from their original area of research (archaeology in the case of *Carmen*, microbiology in the case of Martin Arrowsmith, quantum physics in the case of Michael Beard, etc.: S_2 in the lower-left position) so that they enter hazardous terrain, resulting in a number of problematic or even traumatic experiences which, from the perspective of the analyst, have to be worked-through.

The by-products of these vicissitudes are normative insights (S_1 in the lower-right position). Here, the science novel becomes a bildungsroman (a signifier which is literally used by Cliff in *Intuition* for instance) so that the challenged subjects deepen their understanding of what research really is. They discover, for instance, that research is not only devoted to producing true (i.e. valid, adequate) knowledge, but that truth (*veritas* in Latin) presupposes *truthfulness*, that *veritas* is intrinsically connected with *veracity*. While the use of vignettes may reflect an engineering approach to ethics, as a sub-branch of university discourse (to every problem there is a solution), the discourse of the analyst rather builds on more extended and multi-layered case material, as we have seen: on full-fledged case histories, in the form of science biographies and autobiographies, but also in the form of science drama, science cinema and science novels. Novels reflect the complexity of the integrity challenges emerging in contemporary research. The term *novel* (*novella*) comes from novelty (*novum* in Latin) and science novels describe the experiences of researchers who are exposed to something unexpected (Idema 2013): an unexpected find, a new contraption (which opens up a new way of doing research), or an unexpected (apparently disastrous) event, an intrusion of the real. In this no man's land (or parallax land), between the human law (of guidelines, procedures, codes of conduct, legal constraints, etc.) and the unwritten law (the voice of conscience), novels allow us to explore and assess plausible scenarios for action.

Thus, science novels, more specifically research misconduct novels, may provide valuable materials for ethics and integrity courses for future researcher in various fields (natural science, social science, humanities, etc.) both inside and out-

side academia. As to the question *how* to read such novels, this monograph presented an oblique technique of reading, building on Hegelian dialectics and Lacanian psychoanalysis, which can be adopted for this purpose.

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